

WHAT IS CLAIMED IS:

1. A vehicle headlamp device comprising:

optical-axis deflecting means for deflecting illumination optical axes of headlamps of a vehicle,

5 said optical-axis deflecting means comprising:

a drive motor as a rotation drive source;

a plurality of detecting elements for detecting a rotational position of said drive motor; and

motor drive means for controlling a rotation of said drive  
10 motor based on a rotational position of said drive motor detected by said detecting elements,

wherein said motor drive means includes a rotation-state recognizing means operating such that when any of said plurality of detecting elements is abnormal, said rotation-state  
15 recognizing means recognizes a rotational position of said drive motor based on the output signals of the remaining detecting elements and a predetermined angle prediction time computed using a rotational period of said drive motor.

20 2. A vehicle headlamp device according to claim 1, wherein said rotation-state recognizing means includes means for encoding the output signals of said plurality of detecting elements, means for detecting a change of each said code value encoded, means for measuring a time duration where each said  
25 code value changes to thereby set a predetermined angle

prediction time, means for recognizing a rotational position of said drive motor from said code values, and means for recognizing a time point when said predetermined angle prediction time has elapsed from a time point that said code value changes,  
5 as a rotational position of said drive motor.

3. A vehicle headlamp device according to claim 1, wherein said drive motor is a brushless motor including a stator coil, and a rotor formed with an annular magnet rotating about  
10 said stator coil, and each said detecting element is a Hall element which varies an output signal thereof in response to a magnetic field change caused by rotation of said rotor.

4. A vehicle headlamp device according to claim 2,  
15 wherein said drive motor is a brushless motor including a stator coil, and a rotor formed with an annular magnet rotating about said stator coil, and each said detecting element is a Hall element which varies an output signal thereof in response to a magnetic field change caused by rotation of said rotor.

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5. A vehicle headlamp device according to claim 3, wherein the annular magnet having two magnetic poles arrayed at 180° of the center angle, and three Hall elements are arrayed at an angular interval of 120°.

6. A vehicle headlamp device according to claim 4, wherein the annular magnet having two magnetic poles arrayed at 180° of the center angle, and three Hall elements are arrayed at an angular interval of 120°.

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7. A vehicle headlamp apparatus according to claim 1, wherein the illumination optical axes of the headlamp is changed horizontally according to the steering angle of the steering wheel of the vehicle.

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8. A vehicle headlamp apparatus according to claim 1, wherein the drive motor and the motor drive means are integrally accommodated as a single unit.

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